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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/648,918	08/25/2000	Peter K. Cheo	PC-12	7311
7590	10/29/2003			
M P Williams Patent Counsel 210 Main Street Manchester, CT 06040			EXAMINER NGUYEN, TUAN M	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 10/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/648,918

Applicant(s)

CHEO ET AL.

Examin r

Tuan M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☒ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. An interview was conducted between Mr. M. P. Williams and James Dwyer, Director 2800, on 9/25/2003. The interview consisted of a discussion on Past Office Actions and interviews. Upon review and reconsideration of the prosecution history and the merits of the outstanding Office Action, the Office Action mailed on 8/27/2003 is hereby withdrawn.

Applicant's amendment filed on Jan 07, 2003 has been reconsidered. It is regretted that "Applicant's intended to use misleading language in the claim to claim the invention" as an insult to the attorney. The examiner apologizes for such language in the Office action. Rule 37 CFR § 1.3.

Drawings

2. The drawings are objected to because figure 1 number 25 has been used twice at different locations. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. Applicant is required to submit a drawing correction for approval as required by rule 37 CFR § 1.123.

Specification

3. The disclosure is objected to because of the following informalities: On page 5 line, the citation of "inner cladding 22" and line 16 the citation of "the pump cladding 22" both are referred as the same number 22. On page 5 line 10, the citation of "an outer cladding.23" is not shown in figure 1. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 2, and 14 are rejected for the following reasons. Claim 1 recites in lines 3 and 5 "each core" twice. It is not clear whether "each core" (both appearances) refers to "one or more cores" as recited in line 2. Claim 1 line 5 further recites "there being either (a) a single core or (b) a central core and additional cores..." The claim fails to define "where" is the core structural related to the other limitations in the claim. Claim 1 line 7 recites "with their long axes" failed to define "their" in the claim. Claim 1 line 9 recites a linearly polarized output laser beam. Claim 1 line 10 recites, "there being a mode discriminating core characteristic selected..." The recitation of "there" fails to define any structural relationship between the recited limitations in the claim. Claim 1 line 10 further recites "a mode discriminating core" in the claim. It is not clear whether the mode discriminating core is the same as the "one or more cores disposed within a pump cladding" as recited in line 2. The claim fails to clearly define any structural relationship with the limitations as recited previously in the claim. Claim 1 recites in lines 5 and 12 "a single core" respectively. It is not clear whether the single core recited in line 12 is the same single core as recited in line 5. Claim 1 line 14 recites, "a fiber having additional cores" without the recitation of how the additional cores are structural, related to the other limitations in the claim, which render the claim confusing, vague, and indefinite. Claim 1 lines 18 – 21 recites "thereby causing radiation in said cores to phase-lock and transfer laser power coherently into a linearly polarized, bright laser beam of the fundamental in-phase supermode from all higher order supermodes belonging to the same array structure." Since there is no other limitations recited in the claim to produce any phase, laser power, or laser beam, the recitation of such functions render the claim confusing, vague, and indefinite. Claims 2 and 14 are rejected for the reasons as set forth above. Therefore, the claims are considered as functional, confusing, vague, and indefinite which the claims fail to comply with 35 USC 112, 2nd paragraph.

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Claims 2 and 14 are rejected for the reasons as set forth above. Therefore, the claims are considered as functional, confusing, vague, and indefinite which the claims fail to comply with 35 USC 112, 2nd paragraph.

Claim Rejections – 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 14, 15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiGiovanni et al (5,708,669) in view of Keck (4,415,230).

Since the claims are rejected under 35 USC 112, 2nd paragraph above, so far as the claims are understood and the claims are given with their broadest interpretation, the claims are rejected for the following reasons. With respect to claim 14, DiGiovanni et al discloses article comprising a cladding pumped optical fiber laser, an optical fiber (10) for a cladding pumped fiber laser, an outer cladding (11), an inner cladding (13), and a core (12) disposed within a pump cladding. The core comprises a rare earth dopant, note col. 1 line 16 to col. 2 line 61, and see fig. 1. However DiGiovanni do not discloses each core having an oblong cross section. Whereas Keck discloses the core having an oblong cross section, note col. 3 line 61, see fig 6. For the advantageous of the cladding pump to provide a linearly polarized output beam, it would have been

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obvious to one having ordinary skill in the art at the time the invention was made to provide DiGiovanni with the core having an oblong cross section as taught or suggested by Keck. Furthermore, the use of an oblong core for optical fiber is notorious old in the art.

With respect to claim 15, DiGiovanni discloses the optical fiber (10) has one core (12), see fig. 1.

With respect to claim 20, DiGiovanni discloses the cladding pump optical fiber (10) has a circular cross section, see fig 1.

8. Claims 16-17, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiGiovanni et al (5,708,669) in view of Keck (4,415,230) further in view of Scifres (5,566,196).

With respect to claim 16, DiGiovanni and Keck discloses all limitations as set forth in claim 14 except for plurality of cores with substantially the same cross sectional area as each other of the cores. Whereas Scifres disclose cores (11) have the same diameter of about 10 μm or less, note col.3 line 21, see fig. 1. For the advantageous of the cladding pump optical fiber to provide a linearly polarized output beam, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide DiGiovanni with the plurality cores having the same cross sectional area as taught or suggested by Scifres.

With respect to claim 17, Scifres discloses multiple non-concentric core regions embedded within lower refractive index cladding material, note col. 7 line 5 to 14.

With respect to claim 19, Scifres discloses the core regions (11) may have a diameter of 10 μm or less, alternately, may have a larger diameter on order to support multiple modes of propagation. The core (11) may be spaced with their core regions edges within about 2 μm of neighboring core regions in order to allow interaction of the evanescent light for phase locking of the core regions, note col. 3 line 20 – 37.

With respect to claim 21, Scifres discloses the cores (51a-51e) have rectangular cross section, note col. 3 line 44, see fig 5.

Response to Arguments

9. Applicant's arguments filed on 01-07-2003 have been fully considered but they are not persuasive.

On page 9 Applicant argues, "Keck discloses and is totally concerned with an optical wave-guide and not a laser". It is disagreed because applicant in figure 1 shows a laser fiber (19) comprises an inner cladding (22), an outer cladding (23), and a single core (20). Whereas Keck shows in figure 6 a laser fiber (70) comprises an inner cladding (78), an outer cladding (74) and a single core (80). There is no different between the applicant fiber laser and Keck fiber laser. Furthermore, claims 14 recite a clad-pumped, double clad, fiber laser comprising each core having an oblong cross section. Whereas Keck discloses fiber laser (70) comprises a core (80) has an oblong cross section, see figure 6.

Accordingly to the above reasons Applicant's argument is not persuasive. Claims 1-21 are not patentable.

Communication Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan M Nguyen whose telephone number is (703) 306-0247. The examiner can normally be reached on 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.



Paul Ip
Supervisory Patent Examiner
Art unit 2828

TMN
October 27, 2003